



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,642	04/21/2004	I. Richard Schaffner		5330

7590 05/04/2005  
I. Richard Schaffner  
17 Birch Court  
Goffstown, NH 03045

EXAMINER

FORD, ALLISON M

ART UNIT	PAPER NUMBER
----------	--------------

1651

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/828,642	SCHAFFNER, I. RICHARD	
	<b>Examiner</b>	<b>Art Unit</b>	
	Allison M. Ford	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) 3 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____  | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Status of Application*

Claims 1-18 are pending in the current application.

### *Claim Objections/Duplicate Claim Warning*

Claim 11 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 5, 7, 9, 14, and 16 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant has failed to provide any teachings or description of the effect of the fatty acids in the composition, or the reason for their inclusion. A sole sentence in the specification teaches that inclusion of fatty acids may be necessary for the treatment of CVOC plumes that exist under strictly anaerobic conditions (See Spec. Pg. 11); however, no teachings on their effect, either directly, or through incorporation by reference, is provided.

*Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's claim 13 requires the biodegradable sugar of claim 12 to *further* comprise a sugar selected from the group consisting of lactose, dextrose, and sucrose. It is not clear if applicant intended for the biodegradable sugar to be in addition to one of those sugars listed, or if applicant intends for the biodegradable sugar to be selected from those sugars listed.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-7, and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Rebhan (US Patent 5,756,132).

Rebhan teaches a dry, water-dispersible milk replacement for calves comprising brewer's yeast, dextrose, lactose, lard and vegetable fats (which applicant calls fatty acids and vegetable oils) (See col. 2, ln 40-57) (Claims 1, 5-7, and 12-14). Though Rebhan does not teach the milk replacement as a biological stimulant for use in bioremediation, the composition comprises the same ingredients as claimed in the current application, and therefore inherently has the same electron donor properties as the claimed biological stimulant without evidence to the contrary. Please note that if the body of claim fully and

Art Unit: 1651

intrinsically sets forth all limitations of the claimed invention, such as all the components of a composition, and the preamble merely states the intended use of the invention, rather than any distinct definition of the any of the claimed invention's limitations, the preamble is not considered a limitation and is of no significance to claim construction. See MPEP § 2111.02. Therefore the reference anticipates the claimed subject matter.

Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanebo Ltd (JP 06219936 A).

Kanebo Ltd discloses a cosmetic material comprising oligosaccharides and yeast, wherein the oligosaccharide can be lactose or sucrose, and the yeast is *Saccharomyces* (Brewer's Yeast) (See abstract). Though Kanebo Ltd does not teach the cosmetic material as a biological stimulant for use in bioremediation, the composition comprises the same ingredients as claimed in the current application, and therefore inherently has the same electron donor properties as the claimed biological stimulant without evidence to the contrary. Please note that if the body of claim fully and intrinsically sets forth all limitations of the claimed invention, such as all the components of a composition, and the preamble merely states the intended use of the invention, rather than any distinct definition of the any of the claimed invention's limitations, the preamble is not considered a limitation and is of no significance to claim construction. See MPEP § 2111.02. Therefore the reference anticipates the claimed subject matter.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 11-13 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keasling et al (US Patent 6,150,157).

Keasling et al teach a biological stimulant composition for the reductive dehalogenation of organic halides in contaminated groundwater comprising a carbohydrate and a reductive dehalogenation factor in the form of a nutrient extract (See col. 2, ln 52-65). The carbohydrate can be lactose, sucrose or glucose (which applicant refers to as dextrose) (See col. 4, ln 9-22). The reductive dehalogenation factor can be yeast extracts (See col. 4, ln 40-67).

Though Keasling et al teach using yeast extracts, and not whole Brewer's yeast, as in the current application, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use whole yeast cultures instead of yeast extracts in order to reduce processing steps and costs. One of ordinary skill in the art would have been motivated to use whole yeast cultures, especially cultures of *Saccharomyces*, because such cultures are readily commercially available; plus by using whole cultures, instead of extracts, one saves the step of lysing the cells and separating out the desired extracts, and still further, intact yeast cells retain their protective cell wall, thereby reducing the degradation rate of the desired factors. One would expect success because yeast extracts have the same chemical composition as whole yeast, and therefore the intact culture provides the same reductive dehalogenation factors as the yeast extract. One would expect success using Brewer's yeast because Keasling et al teach the genus yeast, therefore all yeast species, including *Saccharomyces*, comprise the desired reductive dehalogenation factors, as no evidence has been provided to show Brewer's yeast has unexpected results over other yeast species.

Though Keasling et al do not teach specific concentrations or ratios of the carbohydrate source to yeast extract, they clearly indicate that the various proportions and amounts of the lactose, sucrose or glucose and the concentration of yeast extract, or alternatively the concentration of Brewer's yeast, used in the composition are result effective variables, they would be routinely optimized by one of ordinary

Art Unit: 1651

skill in the art in practicing the invention disclosed by Keasling et al. Specifically, Keasling et al teach that the amount of lactose, sucrose, or glucose and yeast is to be altered to perform optimal in situ reductive dehalogenation of organic halides based on the type of carbohydrate used, the organic halides that are to be dehalogenated, the microbial population present in the soil and the presence of other chemicals (See col. 5, ln 11-28). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to manipulate the concentration of the lactose, sucrose or glucose and Brewer's yeast in the biological stimulant composition to be create appropriate conditions based on the other variables mentioned above; therefore, depending on conditions, the lactose, sucrose, or glucose can comprise anywhere from 40-80% (w/w) or specifically 70% (w/w) and the Brewer's yeast can comprise anywhere from 15-60% (w/w) or specifically 30% (w/w) of the biological stimulant concentration. Therefore the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

It is noted that applicant points out differences between their current invention and that of Keasling et al, specifically in regards to presently claimed inventions ability to first scavenge terminal electron acceptors from CVOC-impacted groundwater systems and then drive metabolic reductive dehalogenation once competing oxidants are depleted. However, it is noted that applicant's invention is drawn to a composition comprising lactose and Brewer's yeast, which has been found obvious over the disclosure of Keasling et al. In regards to the functioning of the lactose and yeast in the claimed composition: discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Claims 5-10 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keasling et al (US Patent 6,150,157), in view of Hince (US 2002/0090697 A1).

Keasling et al teach a biological stimulant composition for the reductive dehalogenation of organic halides in contaminated groundwater comprising a carbohydrate and a reductive dehalogenation factor in the form of a nutrient extract (See col. 2, ln 52-65). The carbohydrate can be lactose, sucrose or glucose (which applicant refers to as dextrose) (See col. 4, ln 9-22). The reductive dehalogenation factor can be yeast extracts (See col. 4, ln 40-67).

Though Keasling et al teach using yeast extracts, and not whole Brewer's yeast, as in the current application, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use whole yeast cultures instead of yeast extracts in order to reduce processing steps and costs. Also, the various concentrations and ratios of carbohydrate source to yeast would have been routinely optimized by one of ordinary skill in the art. See teachings above.

Keasling et al do not include vegetable oil or fatty acids in their biological stimulant composition, nor does their biological stimulant composition have a portion with a reduced aqueous solubility. However, Hince teaches a similar solid-chemical composition for the bioremediation of contaminated soil that does include both vegetable oil and fatty acids.

Hince teaches the fatty acids, which are included in salt form, promote the growth of a more diverse range of microorganisms in the contaminated soil (See pg. 5, paragraph 0039). Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to include fatty acids in the composition of Keasling et al in order to promote growth of a wider range of anaerobic microorganisms that are endogenous or exogenously added to the contaminated soil to which the composition of Keasling et al is added. One of ordinary skill in the art would have been motivated to promote the growth of a wide consortia of microorganisms in the contaminated soil to which the



Art Unit: 1651

composition of Keasling et al is to be added, because Keasling et al teach that complex cultures of microorganisms are needed to reductively dehalogenate contaminated soil (See Keasling et al, col. 2, ln 52-65). One would have expected success because Hince teaches inclusion of fatty acids in a similar bioremediation composition promotes the growth of diverse microorganisms.

Additionally Hince includes insoluble polymers, that coat a portion of the composition so as to reduce aqueous solubility, causing the coated portion to biodegrade slowly, thereby sustaining release of the substances over time (See Hince, pg 5-6, paragraph 0042-0043). Though Hince does not specifically teach vegetable oils as one of the preferred insoluble materials, he does teach the inclusion of vegetable oil as a lubricant; it will be obvious to one of ordinary skill in the art that the vegetable oil can dually function as an insoluble substrate coating for reducing solubility of the composition (See Hince, pg. 7, paragraph 0052).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to also include vegetable oil in the composition of Keasling et al, in order to coat a portion of the lactose, glucose (dextrose), or sucrose and Brewer's yeast composition in vegetable oil so as to reduce the aqueous solubility of the portion. One would have been motivated to coat a portion of the composition of Keasling et al with vegetable oil in order to decrease the aqueous solubility of that portion, thereby sustaining release of the biological stimulant over time. One would have expected success because the vegetable oil-coated particles will eventually be solubilized and available for reductive dehalogenation in the contaminated soil, and the vegetable oil will not further contaminate the soil.

Therefore the invention as a whole, comprising the biological stimulant composition of Keasling et al modified to include both fatty acids and fatty acids, as taught by Hince, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

### *Conclusion*

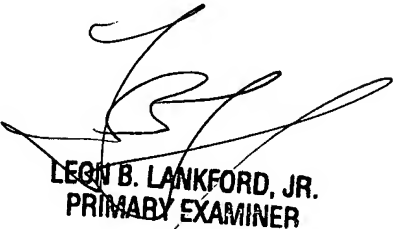
Art Unit: 1651

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allison M. Ford whose telephone number is 571-272-2936. The examiner can normally be reached on 7:30-5 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allison M Ford  
Examiner  
Art Unit 1651



LEIGH B. LANKFORD, JR.  
PRIMARY EXAMINER